UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

February 18, 2005

MEMORANDUM

SUBJECT: National Remedy Review Board Recommendations for the Onondaga Lake Superfund Site

FROM: Jo Ann Griffith, Chair
National Remedy Review Board

TO: William J. McCabe, Acting Division Director
Emergency and Remedial Response Division

Purpose

The National Remedy Review Board (NRRB) has completed its review of the proposed cleanup action for the Onondaga Lake Superfund Site in Onondaga County, New York. This memorandum documents the NRRB's advisory recommendations.

Context for NRRB Review

The Administrator announced the NRRB as one of the October 1995 Superfund Administrative Reforms to help control response costs and promote consistent and cost-effective decisions. The NRRB furthers these goals by providing a cross-regional, management-level, "real time" review of high cost proposed response actions prior to their being issued for public comment. The board reviews all proposed cleanup actions that exceed its cost-based review criteria.

The NRRB evaluates the proposed actions for consistency with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and relevant Superfund policy and guidance. It focuses on the nature and complexity of the site; health and environmental risks; the range of alternatives that address site risks; the quality and reasonableness of the cost estimates

for alternatives; regional, state/tribal, and other stakeholder opinions on the proposed actions, and any other relevant factors.

Generally, the NRRB makes advisory recommendations to the appropriate regional decision maker. The Region will then include these recommendations in the administrative record for the site, typically before it issues the proposed cleanup plan for public comment. While the Region is expected to give the Board's recommendations substantial weight, other important factors, such as subsequent public comment or technical analyses of response options, may influence the final regional decision. The Board expects the regional decision maker to respond in writing to its recommendations within a reasonable period of time, noting in particular how the recommendations influenced the proposed cleanup decision, including any effect on the estimated cost of the action. It is important to remember that the NRRB does not change the Agency's current delegations or alter in any way the public's role in site decisions.

Overview of the Proposed Action

The Onondaga Lake site, located in Onondaga County, New York, includes the Lake itself and all sources of contamination to the Lake, including potentially 10 to 20 subsites. Subsites are defined as any site that is situated on Onondaga Lake's shores or tributaries or in the proximity to the lake or tributaries that have contributed contamination to, or threatens to contribute contamination to, the Onondaga Lake system. One of these subsites is the Onondaga Lake Bottom, the subject of the presentation. The Onondaga Lake subsite consists of the 4.6-square mile Onondaga Lake.

The preferred remedy for the Lake Bottom subsite includes a combination of dredging, capping, aeration, and monitored natural recovery. The estimated present-worth cost of the preferred remedy is $451 million. As a state-lead project, the New York State Department of Environmental Conservation assisted the Region in preparing the presentation package and made a presentation at the Board meeting. Three stakeholders have been identified: the Onondaga Nation, Honeywell International, a potentially responsible party, and Atlantic States Legal Foundation, Inc., the technical assistance grant recipient.

The Onondaga Nation presented written comments to the Board and made a presentation at the Board's meeting. The Onondaga Nation has a strong interest in the cleanup of Onondaga Lake, because it is located within its land claim area, and the Nation considers the lake and the land along its shoreline to be sacred. In its written comments and at the meeting, the Nation voiced its objection to any proposed remedy that would leave contaminants in Onondaga Lake.

Honeywell's written comments suggest that while it prefers its own remedy, it does not appear to substantively object to the State's preferred remedy described in the Proposed Plan. Atlantic States Legal Foundation, Inc. supports getting started on actions to clean up and rehabilitate the Onondaga Lake Bottom. It agrees that dredging and capping are necessary and suggests that design work leading to this work should commence as soon as practicable.

NRRB Advisory Recommendations

The NRRB reviewed the information package describing this proposal and discussed related issues with a number of representatives from the Region, State, and the Onondaga Nation (see the attached list) on February 8, 2005. Based on this review and discussion, the Board offers the following comments:

1. The Board recognizes that the State and Honeywell are operating pursuant to a consent decree based on state law. The Board believes, however, that it would be helpful for the State's decision document to refer to specific provisions of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), as well as relevant EPA guidance, to more clearly demonstrate how the Proposed Plan was prepared consistent with the same. The Board also recognizes that Honeywell's comments suggest that while it prefers its own remedy, it does not appear to substantively object to the State's preferred remedy described in the Proposed Plan.

2. The Board notes that the package presented to the Board did not quantify the human health and ecological risk reduction likely to be achieved for the various remedial alternatives. While remedy costs for various alternatives were presented, the benefits obtained by the different alternatives were not clearly described in the package presented to the Board. For example, it is unclear what additional benefits are afforded by dredging increasing volumes of sediment in Alternatives 2 through 5. The Board recommends that the decision document clarify how the preferred alternative best meets the remedial action objectives for the site.

3. The package presented to the Board and the Proposed Plan had limited discussion on the current and future uses of the lake. Further, the Onondaga Nation indicated during its presentation that people traditionally relied upon fish as an integral part of their diet and anecdotal information indicates that people may continue to consume fish from the lake in spite of the current fish consumption advisory. (The advisory recommends that no more than one meal per month be eaten and that walleye not be eaten at all. The advisory also recommends that infants, children under the age of 15 years, and women of childbearing age eat no fish from the lake.) The Board suggests that the decision document provide additional information regarding the current uses of the lake, to include any site-specific information related to fish consumption to better explain the importance of taking an action. In addition, this information could be used to improve, if necessary, the effectiveness of fish consumption advisories and other institutional controls.

4. EPA has established a set of sediment management principles regarding the cleanup of contaminated sediment sites (OSWER Directive 9285.6-08:*Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites,* February 12, 2002.) One of these principles discusses the need to coordinate with state and local governments and Tribes. At the meeting, the Onondaga Nation expressed concern related to the lack of

coordination with it regarding the proposed remedy and the timing of the public comment period. The Board encourages an open dialogue among all parties. In addition, the Board recommends that, if requested, the State consider extending the public comment period to allow time for additional dialogue with the Nation and other parties, including time for consideration of the Board's comments and the State's response to these comments.

5. The Board commends the State for utilizing a variety of measures of ecological risk (*e.g.*, effects range - low (ER-L), effects range - median (ER-M), etc.). However, the Board notes that EPA ecological risk assessment guidance (OSWER Directive 9285.7-25: *Process for Designing and Conducting Ecological Risk Assessments,* June1997) and EPA's draft sediment guidance (OSWER Directive 9355.0-85: *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites*, January 2005) recommend that a range of numerical remediation goals be developed and refined using the NCP remedy selection criteria to provide the basis for selecting final sediment cleanup levels. The Board encourages the State to explain further how the remediation goals developed for the site, either as currently expressed in the Proposed Plan or as they may be modified for the ROD, are appropriate and consistent with the NCP and EPA guidance.

6. The list of alternatives for consideration in the Proposed Plan includes limited variations of capping, dredging, and monitored natural recovery. It was not clear what basis was used to screen out alternatives that could isolate waste in place, such as the relocation of a barrier wall outside the boundary of the In-Lake Waste Deposit (ILWD). The Board recommends that the State explain in the Administrative Record why this alternative was screened out. In addition, only alternatives based on ER-Ls, or the mercury probable effects concentration (PEC) and a mean PEC Quotient (PECQ) of "1" were considered in the Proposed Plan. From the package presented to the Board, it was unclear why the State considered alternatives based on the mercury PEC and a mean PECQ of "2" to be unprotective. The Board recommends that the State either explain its decision more fully in the Administrative Record or expand the range of remediation goals which are evaluated for the site.

7. Under CERCLA 121(d)(2)(A), the Federal Ambient Water Quality Criteria would be a relevant and appropriate requirement. In January 2001, EPA released a methylmercury National Recommended Water Quality criterion for the protection of human health for the consumption of organisms. This criterion is 0.3 mg/kg as measured in fish tissue, based on a fish consumption rate of 0.0175 kg/day. The Board recommends that the State add this EPA value to its decision document as support for its fish tissue preliminary remediation goal (PRG) or describe why it would not be an applicable, or relevant and appropriate. Similarly, the decision document and Administrative Record should include evaluations of the requirements related to Clean Water Act Section 404(b)(1) and Section 10 of the Rivers and Harbors Appropriation Act of 1899.

8. The detailed cost estimates provided to the Board were essentially from Appendix F of the feasibility study (FS) reports. The Appendix included several assumptions which were used to base the alternative cost estimates. In these assumptions, it is stated that the Sediment Consolidation Area (SCA) cap would include approximately 4.5 feet of soil material and a geosynthetic liner, etc. for a total thickness of nearly five feet. As this is thicker than is typically used at other sites, the Board recommends that the State consider whether the use of a thinner cap would meet site requirements and reduce costs. Additionally, page F 2-19 of the Appendix states that several oversight and management costs were used that are not consistent with EPA cost guidance. Most of these percentages are lower than EPA's guidance (*A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, OSWER 9355.0-75, July 2000) and, therefore, may underestimate the estimated cost. The Board recommends that the Administrative Record include a more clear justification for these cost estimates.

9. The Board recommends that the State develop and implement a monitoring program for sediment, water, and biota as soon as practicable after remedial goals are finalized. The monitoring should be designed to serve as the baseline against which remedy performance can be measured. It also should include indicator parameters to provide near-term evidence that the system is responding to remedial activities as expected. For example, advective flux measured before and after installation of shoreline hydraulic controls will verify that the advection estimate used in cap design is correct. Additionally, the Board understands that a quantitative model for mercury cycles in the lake was not developed during the remedial investigation and feasibility study process, in part due to uncertainties associated with the predictive precision of such a model. As additional data are acquired through a monitoring program, it may be possible to develop or refine fate and transport models for the site to optimize the remedial design as implementation proceeds.

10. Page 40 of the package presented to the Board defines habitat optimization as having desired characteristics to meet a particular natural resource goal. However, during the presentation, the State clarified the definition and indicated that the habitat components of the remedies presented in Table 5.1, Lake-wide Alternatives, "reestablish" a viable habitat in areas that will be rededicated. The Board recommends that this be clarified in the Administrative Record and that the term "reestablish" be used.

11. OSWER Directive 9285.6-08:*Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites,* February 12, 2002, recommends that remedial action objectives (RAOs) and preliminary remediation goals (PRGs) be clearly tied to risk management goals. The Board recommends that the State revise or clarify the RAOs and PRGs in the decision document to more clearly communicate the objectives of the cleanup and how meeting the PRGs will help the cleanup attain the RAOs. In particular, the State should ensure that the goals are risk-based (see Principles 7 and 8) and that the cleanup levels are clearly tied to risk management goals (Principle 7). For example, the RAOs could

discuss the level of risk reduction that will be accomplished by the cleanup or what risk will remain at the end of the cleanup (*i.e.*, residual risk). Another example of an RAO could be to what degree the fishing advisory is expected to be relaxed as a result of the cleanup. Once the RAOs are more clearly defined, the State should clearly show how the PRGs will help attain the RAOs. The decision document should also discuss the uncertainties involved in deriving the PRGs and how they may relate to uncertainties in achieving the RAOs. For example, it appears that the bioaccumulation sediment quality value (BSQV) was derived using lake-wide average mercury concentrations in both fish and sediments. The Board is concerned that assuming a linear relationship between mercury in fish and mercury in sediment through a broad range of sediment concentrations may lead to underestimating the fish tissue levels of mercury at low sediment concentrations.

12. In the package presented to the Board, the total mercury loading from external sources to Onondaga Lake identified approximately one-third as coming from tributaries, the treated wastewater from the Metropolitan Syracuse Wastewater Treatment Facility, and groundwater. While several of these external sources have undergone interim response measures, other noteworthy external mercury sources to the lake are in the investigation phase. The Board is concerned with the timing of the lake-wide cleanup in relation to completion of all external source cleanups. This concern was also provided in written comments to the Board by the Onondaga Nation. Therefore, the Board recommends that the Administrative Record include a matrix showing the expected sequence of remedial actions at all external sources, in relation to the start of design and actual implementation of the lake-wide cleanup that is ultimately selected.

13. Looking at the data available to the Board regarding contaminant concentrations in the ILWD, it appears that most of the potential hotspot material would be removed as part of the two-meter dredging in Alternative 4. The Board recognizes the importance of additional data collection during remedial design and recommends use of these data in an adaptive management fashion to maximize remedy effectiveness and minimize cost. The Board recommends that the remedy as stated in the decision document include flexibility in dredge depth and cap thickness so that cap effectiveness and cost efficiencies can be attained following additional data collection. For example, additional evaluation of contaminant profiles in sediment and cap model results may elucidate whether flux of chlorobenzenes and other organics through the cap would or would not cause significant risk to benthos.

The NRRB appreciates the Region's efforts in working together with the stakeholders at this site. Once your response is final, then a copy of your response and the NRRB recommendations will be posted on the NRRB website.

Thank you for your support and the support of your managers and staff in preparing for this review. Please call me at (703) 603-8774 should you have any questions.

Attachment: List of Attendees at the NRRB Meeting, February 8, 2005.

cc: M. Cook (OSRTI)
E. Southerland (OSRTI)
S. Bromm (OSRE)
J. Woolford (FFRRO)
Rafael Gonzalez (OSRTI)
NRRB members

Attachment

National Remedy Review Board Meeting
February 8, 2005
Onondaga Lake Superfund Site

Name	**Organization**
Allen Burton	TAMS
Tim Larson	NYS/DEC
Helen Chernoff	TAMS
Bob Edwards	NYS/DEC
George Shanahan	EPA /Office of Region Counsel, Region 2
Carol Conyers	NYS/DEC Counsel
Janice Whitney	EPA/Indian Programs, Region 2
David Schevina	TAMS
Kelly Robinson	TAMS
Edward Modica	EPA/Superfund
John Szeligowski	TAMS
Joel Singerman	EPA/Superfund, Region 2
Tracy Smith	NYS/DEC
P. David Smith	NYS/DEC
Dale Desnoyers	NYS/DEC
Sal Ervolina	NYS/DEC
Michael L. Spera	TAMS
Leah Evison	EPA/OSRTI
Charles Openchowski	EPA/OSRTI
Amy Legare	EPA/OECA/OSRE
Stephen Ells	EPA/OSTRI
Ron Wilhelml	EPA/ORIA
Tom Short	EPA/Region 5
Michael Jasinksi	EPA/Region 1
Kathlean Salyer	EPA/Region 9
Timothy Mott	EPA/FFRRO
Judi Schwarz	EPA Region 10
Rich Norris	EPA/OSRTI
Marisa Guarinello	EPA/OSRTI
Craig Zeller	EPA/Region 4
Randy Sturgeon	EPA/Region 3
Carlos A. Sanchez	EPA/Region 6
Walter S. Graham	EPA/Region 3
John Frisco	EPA/Region 2
Andre Zownir	EPA/ERT
Emily Johnson	EPA/OSRTI

Attachment (cont.)

Name	Organization
Trish Erickson	EPA/ORD
Jerry Jones	EPA/ORD
Craig Smith	EPA/Region 7
Jo Ann Griffith	EPA/OSRTI
John Lapadula	EPA, Region 2
Michael Sivak	EPA, Region 2
Joe Heath	Counsel for the Onondaga Nation
Sid Hill	Onondaga Nation